

WHAT IS CLAIMED IS:

1. An instrument comprising
  - (i) a housing for attachment to a vessel or pipeline through which a process fluid is flowing and
  - (ii) a probe having
    - (a) a shaft which may be inserted or withdrawn from said vessel or pipeline through sealing means associated with said housing, and
    - (b) an elongated container containing a catalyst or sorbent fixed to one end of said shaft whereby, by insertion of said shaft into said vessel or pipeline, said elongated container is retractably disposed within said process fluid in a direction transverse to the flow thereof; said container having walls with orifices therein whereby part of the process fluid can flow from upstream of said container through at least one orifice in the wall of the container into an upstream region, through said catalyst or sorbent and into a downstream region, and thence through at least one orifice in the wall of the container to the exterior downstream of the container, characterised in that said upstream and downstream regions are free of catalyst or sorbent and are separated from one another by baffle means which, together with the catalyst or sorbent, are disposed so that the part of the process fluid entering the upstream region passes through the catalyst or sorbent to reach the downstream region.
2. An instrument according to claim 1, wherein the process fluid is flowing transverse to the probe at rate equivalent to gas velocities between 10 and 30 metres per second.
3. An instrument according to claim 1, wherein the catalyst or sorbent is contained within an inner elongated perforate container fixed within an outer perforate container, said inner container having at least one orifice in the upstream region and at least one orifice in the downstream region and baffles between the outer perforate container and said inner container divide said upstream region from said downstream region such that process fluid flows in a substantially axial or transverse manner through said catalyst or sorbent.
4. An instrument according to claim 3, wherein mesh dividers are present to segregate catalyst or sorbent into separate beds within the inner container.
5. A method for monitoring a process fluid stream or the behaviour of a catalyst or sorbent in said stream using an instrument comprising;
  - (i) a housing for attachment to a vessel or pipeline through which a process fluid stream is flowing and
  - (ii) a probe having
    - (a) a shaft which may be inserted or withdrawn from said vessel or pipeline through sealing means associated with said housing, and

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(b) an elongated container containing a catalyst or sorbent fixed to one end of said shaft, said container having walls with orifices therein whereby part of the process fluid stream can flow from upstream of said container through at least one orifice in the wall of the container into an upstream region, through said catalyst or sorbent and into a downstream region, and thence through at least one orifice in the wall of the container to the exterior downstream of the container, characterised in that said upstream and downstream regions are free of catalyst or sorbent and are separated from one another by baffle means which, together with the catalyst or sorbent, are disposed so that the part of the process fluid entering the upstream region passes through the catalyst or sorbent to reach the downstream region, comprising the steps of;

- (i) attaching said housing to a valve assembly fixed to a pipeline or vessel through which said process fluid stream is flowing,
  - (ii) opening said valve,
  - (iii) passing the probe containing a catalyst or sorbent through said sealing means in said housing and thence through the opened valve into the process fluid stream whereby part of the process fluid stream passes through said catalyst or sorbent for a period of time; and thereafter
  - (iv) removing the probe from the process fluid stream.
6. A method according to claim 5, wherein the process fluid stream is flowing transverse to the probe at rate equivalent to gas velocities between 10 and 30 metres per second.
  7. A method according to claim 5, wherein the catalyst or sorbent is contained within an inner elongated perforate container fixed within an outer perforate container, said inner container having at least one orifice in the upstream region and at least one orifice in the downstream region and baffles between the outer perforate container and said inner container divide said upstream region from said downstream region such that process fluid flows in a substantially axial or transverse manner through said catalyst or sorbent.
  8. A method according to claim 7, wherein mesh dividers are present to segregate catalyst or sorbent into separate beds within the inner container.